



Figure 4.2.2 Formant plot of nasalized vowels of Avenor speakers. in=ĩ , en=ẽ, ern=ẽ̃, an= ã, un=ũ, on=õ and orn= õ̃.

Figure 4.2.2 is the plot of nasalized vowels of Avenor speakers. With the exception of the vowel [ĩ], which occupied the traditional position of [i], there is a great confusion in the production of the nasalized vowels by speakers of this dialect also. [ã] Occupies the same position as [a]. It is low and far back for all speakers. There is however much mix-up of both the mid front nasalized vowels and the back ones. The front ones are all scattered around the front and the center whiles the back ones also scattered around the back and center with [õ̃] and [ũ̃] a little retracted from the peripheral toward the center as compared to the orals ones. Paired sample t-test conducted on the mid front vowels and the central vowel [ə] and their nasalized counterparts to ascertain their differences produced the following results.

Table 4.2.1 Paired sample T-test for main effect and interaction of the vowels [e], [ɛ], [ə], [u], [o] and their nasalized counterparts for Avenor speakers.

Vowel Pairs	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Dev.	Std. Error Mean	95% confidence Interval of Difference				
				Lower	Upper			
e-ε	-267.05	406.12	88.62	-451.91	-82.19	-3.013	20	.007
e-ə	104.48	135.95	29.67	42.59	166.36	3.404	20	.003
ε-ə	371.52	404.59	88.29	187.36	555.69	4.208	20	.000
ẽ-ẽ	-182.10	200.15	43.68	-273.20	-90.99	-4.169	20	.000
ẽ-ə̃	102.67	159.83	34.88	29.91	175.42	2.944	20	.008
̃ε-ə̃	284.76	273.32	59.64	160.35	409.18	4.774	20	.000
u-o	-19.90	58.92	12.86	-46.72	6.91	-1.548	20	.137
ũ -õ	20.14	175.58	38.32	-59.78	100.07	.526	20	.605

The results indicate that speakers of this dialect have a difference in the production of the front vowels. However, the pairs [e-ɛ] and [ẽ-ə̃] showed a slight dependency. Generally, these results provide evidence that the speakers of Avenor dialect do fully distinguish between most of these vowels at the individual speaker level. The pairs [u]-[o] and [õ]-[ũ] however, do not show any significant difference. This is an indication that these dialects also do not have a clear distinction in the production of these vowels.

4.3 Ho speakers

Figure 4.3.1 is the formant plot of nine speakers, comprising of five males and four females of this dialect. Their vowels are all clustered within a close acoustic space, however there are some differences in high-low and front back relations across the speakers. While some have a particular vowel produced high and less front, others have it produced low and more front.

[i] is located for all with F1 rising between 250 and 360 Hz and F2¹ between 1800 and 2200 Hz except one speaker who had it produced more front with F2¹ above 2200 Hz. The front vowels [e] and [ɛ] and the central vowel [ə] are all closely located in an area with F1 of 450 to 600 Hz and F2¹ ranges of 1600 and 2000 Hz. They show no significant difference between speakers with F (8)= .170, p< .992 for [e], F (8)= .167, p< .993 for [ɛ], F (8)= .057, p< 1.000 for [ə] respectively. [a] occupied a back place with F1 ranging between 636 and 900 Hz

and F2¹ 576 and 807 Hz. The back vowels occupied the back with [u] and [o] positioned closely together with F1 falling between 300 and 450 Hz and F2¹ between 285 and 580 Hz. One speaker produced [u] more shifted from the back toward the center as compared to the others. However a test of variance in quality of these vowels also shows no significant difference. The result shows $F(8) = .302$, $p < .955$ for [u] and $F(8) = .178$, $p < .991$ for [o] respectively. The mid-back vowel [ɔ] by these speakers has taken its place at the back with F1 between 550 and 600 Hz and F2 between 300 and 400 Hz for all speakers.